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Seagate Technology LLC
1280 Disc Drive
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EXAMINER

MARTINEZ, DAVID E

ART UNIT	PAPER NUMBER
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2181

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/767,505	Applicant(s) WARREN, ROBERT W.	
	Examiner David E. Martinez	Art Unit 2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-10, 13-18 and 21-25 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent Application Publication No. US 2002/0169960 A1 to Iguchi et al. (hereinafter Iguchi).

1. With regards to claim 1, Iguchi teaches a host interface comprising:

a channel select bit encoder that asserts to a media controller one or more channel select bits indicating one of a plurality of virtual channels through which the host interface will communicate over a data bus with the media controller [paragraphs 90 and 119 – Figs 13 and 17, a channel select bit encoder exists inside element 120 which selects the virtual channel to be used for communication to take place];

a virtual channel controller coupled to the channel select bit encoder that establishes a connection for address-less transfer between the indicated virtual channel of the host interface and a corresponding virtual channel of the media controller [paragraphs 90 and 119 – Figs 13 and 17, a virtual channel controller exists inside element 120 which is used for establishing a connection with element 103 via a corresponding virtual channel].

2. With regards to claim 2, Iguchi teaches the host interface of claim 1, wherein the connection is a peer-to-peer connection [the virtual connection being a peer-to-peer connection due to happening between the storage element and element 103 in the same layer - paragraphs 90 and 119] and the indicated virtual channel of the host interface and the corresponding virtual

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channel of the media controller are used to establish the peer-to-peer connection to transfer data between the host interface and the media controller [figs 5 and 7-12 show storage device 120 used to store data which is accessed by element 103].

3. With regards to claim 3, Iguchi teaches the host interface of claim 1, wherein the connection is a peer-to-peer connection [the virtual connection being a peer-to-peer connection due to happening between the storage element and element 103 in the same layer - paragraphs 90 and 119] and the indicated virtual channel of the host interface and the corresponding virtual channel of the media controller are used to establish the peer-to-peer connection to transfer control signals between the host interface and the media controller [figs 5 and 7-12 show storage device 120 used to store data which is accessed by element 103 by using control signals].

4. With regards to claim 4, Iguchi teaches the host interface of claim 1, wherein the connection is a peer-to-peer connection [the virtual connection being a peer-to-peer connection due to happening between the storage element and element 103 in the same layer - paragraphs 90 and 119] and the indicated virtual channel of the host interface and the corresponding virtual channel of the media controller are used to establish the peer-to-peer connection to transfer side band information between the host interface and the media controller [figs 5 and 7-12 show storage device 120 used to store data which is accessed by element 103. Transferring data or control signals over a channel requires the use signals. Signals have an upper and lower amplitude as well as a frequency. The side of a signal having the upper amplitude is called the upper side band and the side of the signal having the lower amplitude is called the lower side band thus a channel communicating a signal transfers side band information].

5. With regards to claim 7 Iguchi teaches a media controller [fig 17, inside element 103] comprising:

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a channel select bit decoder [fig 17 element 206] that decodes one or more channel select bits received from a host interface [figs 13 and 17, interface in storage device element] indicating one of a plurality of virtual channels through which the host interface media controller will communicate over a data bus [fig 17 bus element connecting element 103 and 100] with the media controller [paragraph 90 and 119];

a virtual channel controller coupled to the channel select bit decoder that decodes the one or more channel select bits and establishes a connection for address-less transfer between the indicated virtual channel of the host interface and a corresponding virtual channel of the media controller selected based on the one or more decoded channel select bits [paragraphs 90 and 119 – Figs 13 and 17 - a virtual channel controller exists inside storage device element 120 which is used for establishing a connection with element 103 via a corresponding virtual channel].

6. With regards to claim 8 The media controller of claim 7, wherein the connection is a peer-to-peer connection [the virtual connection being a peer-to-peer connection due to happening between the storage element and element 103 in the same layer - paragraphs 90 and 119] and the indicated virtual channel of the host interface and the corresponding virtual channel of the media controller are used to establish the peer-to-peer connection to transfer data between the host interface and the media controller [figs 5 and 7-12 show storage device 120 used to store data which is accessed by element 103].

7. With regards to claim 9 The media controller of claim 7, wherein the connection is a peer-to-peer connection [the virtual connection being a peer-to-peer connection due to happening between the storage element and element 103 in the same layer - paragraphs 90 and 119] and the indicated virtual channel of the host interface and the corresponding virtual channel of the media controller are used to establish the peer-to-peer connection to transfer

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control signals between the host interface and the media controller [figs 5 and 7-12 show storage device 120 used to store data which is accessed by element 103 by using control signals].

8. With regards to claim 10 The media controller of claim 7, wherein the connection is a peer-to-peer connection [the virtual connection being a peer-to-peer connection due to happening between the storage element and element 103 in the same layer - paragraphs 90 and 119] and the indicated virtual channel of the host interface and the corresponding virtual channel of the media controller are used to establish the peer-to-peer connection to transfer side band information between the host interface and the media controller [figs 5 and 7-12 show storage device 120 used to store data which is accessed by element 103. Transferring data or control signals over a channel requires the use signals. Signals have an upper and lower amplitude as well as a frequency. The side of a signal having the upper amplitude is called the upper side band and the side of the signal having the lower amplitude is called the lower side band thus a channel communicating a signal transfers side band information].

9. With regards to claim 13, Iguchi teaches the media controller of claim 7, wherein the connection is a peer-to-peer connection and the media controller limits access to a storage medium of a data storage device through the peer-to-peer connection [paragraph 50].

With regards to claim 14, Iguchi teaches the media controller of claim 13, wherein the media controller limits access to the storage medium based on one or more registers relating to each of the virtual channels of the media controller, the registers indicating a range of addresses on the storage medium that may be accessed via the related virtual channel of the media controller [paragraph 50].

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10. With regards to claim 15, it is directed to a data storage device including the combination of the elements recited in claims 1 and 7 above thus due to the claim reciting similar features, it is rejected under the same rationale.

11. With regards to claim 16, it is directed to a data storage device including the limitations found in claim 2 above thus due to the claim reciting similar features, it is rejected under the same rationale.

12. With regards to claim 17, it is it is directed to a data storage device including the limitations found in claim 3 above thus due to the claim reciting similar features, it is rejected under the same rationale.

13. With regards to claim 18, it is directed to a data storage device including the limitations found in claim 4 above thus due to the claim reciting similar features, it is rejected under the same rationale.

14. With regards to claim 21, it is directed to a data storage device including the limitations found in claim 13 above thus due to the claim reciting similar features, it is rejected under the same rationale.

15. With regards to claim 22, it is directed to a data storage device including the limitations found in claim 14 above thus due to the claim reciting similar features, it is rejected under the same rationale.

16. With regards to claim 23, Iguchi teaches the host interface of claim 1 further comprising:
a communication controller that transfers data between the host interface and the media controller [figs 5 and 7-12 show storage device 120 used to store data which is accessed by element 103] via address-less transfer [paragraphs 90 and 119 – Figs 13 and 17, a communication controller exists inside element 120 which is used for transferring data with element 103 via a corresponding virtual channel].

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17. With regards to claim 24, Iguchi teaches the media controller of claim 7 further comprising:

a communication controller that transfers data between the host interface and the media controller via address-less transfer [paragraphs 90 and 119 – Figs 13 and 17, a communication controller exists inside element 120 which is used for transferring data with element 103 via a corresponding virtual channel].

18. With regards to claim 25, it is directed to a data storage device including the limitations found in claim 23 above thus due to the claim reciting similar features, it is rejected under the same rationale.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 11 and 19, are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. US 2002/0169960 A1 to Iguchi et al. (hereinafter Iguchi) in view of US Patent No. 6,763,405 to Sardo et al. (hereinafter Sardo)

19. With regards to claim 5, Iguchi is silent as to the host interface of claim 1, wherein the communication controller transfers data to and from the media controller synchronous with a clock in the host controller, however, Sardo teaches a host transmitting packets synchronously with a clock in the host controller to a peripheral for the benefit of maximizing transmission throughput to the peripheral [Sardo column 1 lines 23-27].

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Iguchi and Sardo to have the communication controller transfer

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data to and from the media controller synchronous with a clock in the host controller for the benefit of maximizing transmission throughput to the peripheral [Sardo column 1 lines 23-27].

20. With regards to claim 11, it is directed to a media controller having the limitations of claim 5 above and thus is rejected under the same rationale.

21. With regards to claim 19, it is directed to a data storage device having the limitations of claim 5 above and thus is rejected under the same rationale.

Claims 6, 12 and 20, are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application Publication No. US 2002/0169960 A1 to Iguchi et al. (hereinafter Iguchi). in view of US Patent No. 5,790,811 to Hewitt.

22. With regards to claim 6, Iguchi is silent as to the host interface of claim 1, wherein the communication controller transfers data to and from the media controller based on a quadrature handshake model, however, Hewitt teaches exchanging a sequence of ready and acknowledgement signals prior to a transferring data to and from a source and a destination (a "quadrature handshake model" as per applicant's specification page 8 lines 16-20) for the benefit of synchronizing the data source with the data destination for communication to take place [Hewitt column 5 lines 11-39].

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Iguchi and Hewitt to have the communication controller transfer data to and from the media controller based on a quadrature handshake model for the benefit of synchronizing the data source with the data destination for communication to take place [Hewitt column 5 lines 11-39].

23. With regards to claim 12, it is directed to a media controller having the limitations of claim 6 above and thus is rejected under the same rationale.

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24. With regards to claim 20, it is directed to a data storage device having the limitations of claim 6 above and thus is rejected under the same rationale.

Response to Arguments

Applicant's arguments filed 9/4/07 have been fully considered but they are not persuasive.

With regards to Applicant's arguments directed to claims 1, 7 and 15, the Examiner respectfully disagrees. The addressing method disclosed in paragraph 110 of the Iguchi reference discloses the address within a command that is directed to a storage device, the address being the location within the storage device where to data is to be accessed. The Examiner acknowledges the transmission of an address during a connection between elements 103 and 120, however, the address is for the purpose of instructing where to access data being transferred. The address is not directed to being the address of the target device during the communication transfer which is what the claims call for. The claims are still anticipated by paragraphs 90 and 119 which disclose performing connection transfers via virtual communication paths (address-less transfers).

With regards to claims 2-6, 8-14 and 16-25, due to their direct or indirect dependency from claims 1, 7 and 15, they stand rejected at least for the same reasons as those set forth above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Martinez whose telephone number is (571) 272-4152. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on 571-272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DEM


ALFORD KINDRED
SUPERVISORY PATENT EXAMINER